



CONTRACT YA-553-CT1-1096

GEOCHEMICAL AND GEOSTATISTICAL EVALUATION
WILDERNESS STUDY AREAS,
WINNEMUCCA DISTRICT, NORTHWEST NEVADA

VOLUME III

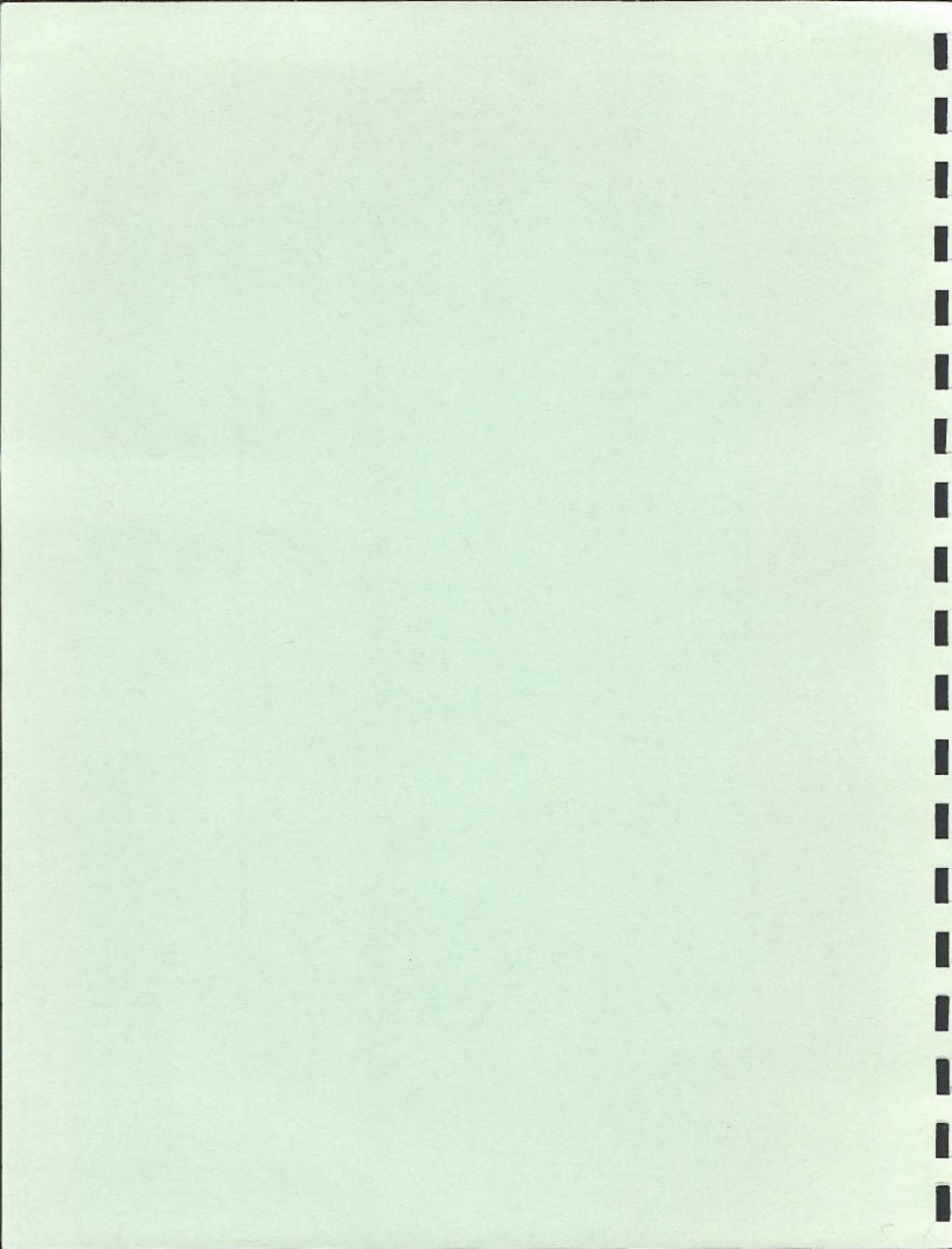
Prepared for:

United States Bureau of Land Management

Prepared by:

R.A. Connors
M.L. Robinson
J.F. Bukofski
W.T. Meyer
R.J. Howarth

Barringer Resources Inc.
1626 Cole Blvd., Suite 120
Golden, Colorado 80401



15141454
ID8806524

GE
138
W56
G462
1982
V3

BLM LIBRARY
SC-324-A, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
DENVER, CO 80225-0047

CONTRACT YA-553-CT1-1096

GEOCHEMICAL AND GEOSTATISTICAL EVALUATION
WILDERNESS STUDY AREAS,

WINNEMUCCA DISTRICT, NORTHWEST NEVADA

VOLUME III

Prepared for:

United States Bureau of Land Management

Prepared by:

R.A. Connors
M.L. Robinson
J.F. Bukofski
W.T. Meyer
R.J. Howarth

Barringer Resources Inc.
1626 Cole Blvd., Suite 120
Golden, Colorado 80401

100-19101
200-19101
DEPARTMENT OF DEFENSE
DEPARTMENT OF DEFENSE

VOLUME I

TABLE OF CONTENTS

ABSTRACT.....	1
CONCLUSIONS.....	2
INTRODUCTION.....	5
APPROACH.....	6
GENERAL GEOLOGY.....	7
INTRODUCTION.....	7
STRUCTURE AND TECTONICS.....	7
Pre-Antler Orogeny Structures.....	7
Antler Orogeny Structures.....	7
Sonoma Orogeny Structures.....	9
Post Sonoma Orogeny Structures.....	9
Basin and Range Structures.....	11
Tectonics.....	11
STRATIGRAPHY.....	12
MINERAL DEPOSITS.....	14
Mining Districts.....	14
Tactites.....	16
Base Metals with Associated Gold and Silver.....	16
Precious Metal Veins with Associated Base Metals.....	17
Precious Metals.....	17
Antimony-Mercury-Manganese Deposits with Associated Precious Metals.....	18
Uranium Occurrences.....	18
Fluorspar Occurrences.....	21
Barite Occurrences.....	22
Other Industrial Mineral Occurrences.....	22
Oil and Gas Resources.....	23
Geothermal Resources.....	25
Other Possible Deposits.....	25
Massive Sulfides.....	25
Porphyry Deposits.....	27

VOLUME I

TABLE OF CONTENTS
(continued)

Mining Districts Within Wilderness Study Areas.....	27
Review of NURE Data.....	31
GEOCHEMISTRY.....	33
GENERAL PRINCIPLES.....	33
RESULTS.....	34
Gold.....	35
Silver.....	35
Tungsten.....	35
Zinc.....	36
Uranium.....	36
Molybdenum.....	36
Mercury.....	36
Barium.....	36
DATA BASE DEVELOPMENT.....	37
GEOSTATISTICS.....	38
FACTOR ANALYSIS.....	38
Methods.....	38
Results.....	43
DISCRIMINANT ANALYSIS.....	44
Methods.....	44
Results.....	46
MULTIPLE REGRESSION ANALYSIS.....	46
Methods.....	46
Results.....	47
CHARACTERISTIC ANALYSIS.....	48
Methods.....	48
Results.....	48
Base and Precious Metal Model.....	50
Volcanic Uranium Model.....	50

VOLUME I

TABLE OF CONTENTS

(continued)

Epithermal Gold and Silver Model.....	50
Mercury Model.....	51
Mafic Copper-Nickel Model.....	51
Other Models.....	51
DISCUSSION AND RECOMMENDATIONS.....	56
DISCUSSION.....	56
RECOMMENDATIONS.....	58
REFERENCES.....	59

LIST OF TABLES

TABLE 1 - ANOMALOUS AREAS WITHIN THE WILDERNESS STUDY AREAS WINNEMUCCA DISTRICT, NEVADA.....	3
TABLE 2 - MINING DISTRICTS, NORTHWESTERN NEVADA.....	16
TABLE 3 - URANIUM OCCURRENCES, NORTHWESTERN NEVADA.....	19
TABLE 4 - FLUORSPAR OCCURRENCES, NORTHWESTERN NEVADA.....	22
TABLE 5 - SUMMARY STATISTICS FOR Au, Ag, W, Zn, U, Mo, Mg and Ba.....	34
TABLE 6 - VARIATION ACCOUNTED FOR BY EACH FACTOR UP TO 33.....	40
TABLE 7 - INTERFACTOR CORRELATIONS.....	41
TABLE 8 - FACTOR LOADINGS, WILDERNESS STUDY AREA, NEVADA.....	41
TABLE 9 - COMMUNALITY OF ELEMENTS, ASSUMING A 10 FACTOR MODEL.....	42
TABLE 10 - FACTOR ANALYSIS RESULTS.....	45
TABLE 11 - PROBABILITIES OF CHARACTERISTIC ELEMENTS USED TO DEFINE THE CONCEPTUAL MODELS.....	49

VOLUME I

TABLE OF CONTENTS

LIST OF FIGURES

FIGURE 1 - LOCATION OF ANOMALOUS AREAS WITHIN THE WILDERNESS STUDY AREAS, WINNEMUCCA DISTRICT, NEVADA.....	4
FIGURE 2 - STRUCTURAL PROVINCES OF THE WESTERN UNITED STATES.....	8
FIGURE 3 - REGIONAL STRUCTURES OF NEVADA.....	10
FIGURE 4 - STRATIGRAPHIC UNITS, NORTHWESTERN NEVADA.....	13
FIGURE 5 - LOCATION OF MINING DISTRICTS, NORTHWESTERN NEVADA.....	15
FIGURE 6 - LOCATION OF BARITE, FLUORITE, AND URANIUM OCCURRENCES NORTHWESTERN NEVADA.....	20
FIGURE 7 - LOCATION OF INDUSTRIAL MINERAL OCCURRENCES, NORTHWESTERN NEVADA.....	24
FIGURE 8 - LOCATION OF KNOWN GEOTHERMAL RESOURCE AREAS, NORTHWESTERN NEVADA.....	26
FIGURE 9 - AREAS FAVORABLE FOR URANIUM OCCURRENCE.....	32
FIGURE 10 - MASSIVE SULFIDE CONCEPTUAL MODEL.....	52
FIGURE 11 - PORPHYRY CONCEPTUAL MODEL.....	53
FIGURE 12 - PLAYA URANIUM CONCEPTUAL MODEL.....	54
FIGURE 13 - TACTITE CONCEPTUAL MODEL.....	55

PLATES

PLATE I	GEOLOGIC MAP OF NORTHWESTERN NEVADA.....	in pocket
PLATE II	CHARACTERISTICS OF MINING DISTRICTS, NORTHWESTERN NEVADA.....	in pocket

VOLUME II

TABLE OF CONTENTS

APPENDIX A - FACTOR ANALYSIS.....	Volume II
Table 12, Factor Scores.....	Volume II
PLATE A-I FACTOR 1.....	in pocket
PLATE A-II FACTOR 2.....	in pocket
PLATE A-III FACTOR 4.....	in pocket
PLATE A-IV FACTOR 5.....	in pocket
PLATE A-V FACTOR 6.....	in pocket
PLATE A-VI FACTOR 7.....	in pocket
PLATE A-VII FACTOR 8.....	in pocket
APPENDIX B - CHARACTERISTIC ANALYSIS: MODEL DESCRIPTIONS.....	Volume II
PLATE B-I BASE AND PRECIOUS METAL MODEL.....	in pocket
PLATE B-II GOLD AND SILVER VEIN MODEL.....	in pocket
PLATE B-III VOLCANIC URANIUM MODEL.....	in pocket

VOLUME III

TABLE OF CONTENTS

PLATE B-IV	MERCURY MODEL.....	in pocket
PLATE B-V	MAFIC COPPER-NICKEL MODEL.....	in pocket
PLATE C-I	SAMPLE LOCATION MAP.....	in pocket
PLATE C-II	GOLD IN STREAM SEDIMENTS.....	in pocket
PLATE C-III	SILVER IN STREAM SEDIMENTS.....	in pocket
PLATE C-IV	TUNGSTEN IN STREAM SEDIMENTS.....	in pocket
PLATE C-V	ZINC IN STREAM SEDIMENTS.....	in pocket
PLATE C-VI	URANIUM IN STREAM SEDIMENTS.....	in pocket
PLATE C-VII	MOLYBDENUM IN STREAM SEDIMENTS.....	in pocket
PLATE C-VIII	MERCURY IN STREAM SEDIMENTS.....	in pocket
PLATE C-IX	BARIUM IN STREAM SEDIMENTS.....	in pocket
PLATE D-I	HISTORICAL MINING ACTIVITY AND FORECAST MINERAL EXPLOITATION INDEX.....	in pocket

VOLUME IV

APPENDIX C

GEOCHEMISTRY
DESCRIPTIVE STATISTICS
GEOCHEMICAL DATA, SAMPLE 1 THROUGH 810

VOLUME V

APPENDIX C, Cont.

GEOCHEMICAL DATA, SAMPLE 811 THROUGH 1908.

BLM LIBRARY
SC-324A, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
DENVER, CO 80225-0047

DATE DUE		
GARLORD		PRINTED IN U.S.A.

